



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,148	02/27/2004	Choong-Bin Lim	9862-000019/US	4630
30593 7590 07/25/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			EXAMINER SUN, SCOTT C	
			ART UNIT 2182	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/787,148	Applicant(s) LIM ET AL.	
	Examiner Scott Sun	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9, 11-16 is/are rejected.
- 7) ☒ Claim(s) 6 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/19/2007 has been entered.

Response to Arguments

2. Applicant's arguments filed 6/19/2007 have been fully considered but they are not persuasive. Applicant's argument's summarized as:

a. Prior art of record does not disclose the newly amended claim limitation of adjusting "buffer capacities of the buffers" or the number of buffers.

3. In response to argument 'a', examiner notes that applicant asserts that prior art of record, Terry, merely discloses that "the amount of data actually stored in the buffer will change" and not the capacity of the buffer is changed (emphasis added). However, applicant's interpretation of the prior art appear to be erroneous, as Terry teaches that Node B monitors a selected quality indicator and "calculates a capacity allocation for the buffer" based on the selected quality indicator (paragraph 16, 25-26, figure 3A). Terry does indeed state that the amount of data in the buffer is changed. However, this change is caused by the buffer capacity allocation, as Terry teaches "the amount of

data may not exceed the capacity allocation". Lastly, Terry teaches that "the method shown in fig 3A is constantly repeated", clearly implying that buffer capacities are being adaptively adjusted according to quality indicators.

4. Having responded to each of applicant's arguments, examiner notes that prior art of record still provide a valid ground of rejection, as attached below with minor changes to reflect the amended claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7-9, 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Terry et al (PG Pub #2004/0027997).

7. Regarding claim 1, applicant's admitted prior art discloses a device (shown in prior art figures 3 and 6) for controlling a first plurality of endpoints (endpoints; figure 3) of a USB device, the device comprising: a plurality of buffers ("ping pong" buffers; figure 3, 6) allocated to the first plurality of endpoints, respectively (background; paragraph 11, 23); and an endpoint buffer controller (MCU 626; figure 6) for managing an exchange of packets between a host and the USB device (paragraphs 23-24).

Applicant's admitted prior art does not disclose explicitly obtaining buffer-utilization information or adaptively adjusting the buffers' capacities. However, Terry discloses obtaining buffer-utilization information (status of the buffer, quality indicator) for each of endpoints (data flows to which buffers are assigned, paragraph 25) and adaptively adjusting the respective buffer capacities of the buffers allocated each of the endpoints based upon the buffer utilization information (paragraphs 16, 24-26). Teachings of applicant's admitted prior art and Terry are from the same field of data buffering.

Therefore, it would have been obvious at the time of invention to combine teachings of applicant's admitted prior art with teachings of Terry by adding the buffer adjustment logic into the buffer system of applicant's admitted prior art for the benefit of increasing performance of the transmission system (paragraph 15).

8. Regarding claim 2, applicant's admitted prior art and Terry combined disclose claim 1, and applicant's admitted prior art further discloses wherein each for the plurality of buffers has a plurality of units and a maximum size (maximum packet size) of $\text{unit_size} \times Z$, where Z is a positive integer representing the total number of units per buffer, respectively (paragraph 25). Examiner notes that computer memory by definition is organized into a plurality of fixed size units (typically bytes).

9. Regarding claim 3-5, 7, applicant's admitted prior art and Terry combined disclose claim 1, and Terry further discloses counting NAK in a certain time period as a quality indicator to determine quality of channel and corresponding buffer sizes (paragraph 31). Applicant's admitted prior art and Terry does not disclose explicitly the

specific hardware, as claimed by applicant, for implementing the method. However, such hardware would have been obvious design choices for a person of ordinary skill in the art in light of the teachings of Terry and applicant's admitted prior art. For example, a timer would be needed to track the time period taught by Terry, a counter would be needed to keep the count of NAK signals taught by Terry.

10. Regarding claim 8, applicant's admitted prior art and Terry combined disclose claim 1 and Terry further discloses wherein the buffers are first-in, first-out (FIFO) buffers (paragraph 12).

11. Regarding claims 9, 12-16, examiner notes that these claims contain limitations that are substantially similar to the above rejected claims, the same grounds of rejection are applied. Note for claim 13 that applicant's admitted prior art disclose using SIE (serial interface engine; figure 2, paragraph 8) as interface to a USB host.

Allowable Subject Matter

12. Claims 6 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. See previous office action for reasons for allowance.

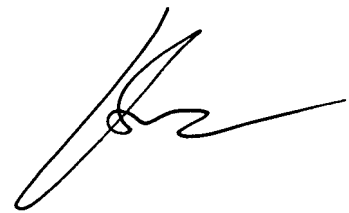
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Sun whose telephone number is (571) 272-2675. The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS



KIM HUYNH
SUPERVISORY PATENT EXAMINER

7/20/02